



PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of

Shuichi ICHIKAWA et al.

Group Art Unit: 2859

Application No.: 10/505,334

Examiner: G. VERBITSKY

Filed: August 23, 2004

Docket No.: 120868

For: METHOD OF MEASURING THERMAL CONDUCTIVITY OF HONEYCOMB
STRUCTURE

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

A Notice of Appeal and Petition for Extension of Time are attached. Applicant respectfully requests review of the Final Rejection mailed May 4, 2007 in the above-identified application in light of the following remarks. Claims 13, 16-18, 22 and 24-26 are pending in this application. This review is requested because the Applicants believe that rejection of independent claim 18, and the claims depending therefrom, over U.S. Patent No. 5,693,685 to Kishimoto et al. (hereinafter "Kishimoto") in view of U.S. Patent No. 6,331,075 to Amer et al. (hereinafter "Amer") is in error for at least the following reasons.

I. Amer and Kishimoto Are Not Combinable in the Manner Suggested

Amer discloses a method of measuring the conductivity of thin solid films, such as paint. The method taught in Amer is limited to use with thin films. Amer states repeatedly that it teaches a method of measuring thermal conductivity of thin films having a thickness of between 50 and 150 μm (see, *e.g.*, col. 2 lines 25-29). Several features of the Amer device and method evidence that the method is limited to use with thin films. For instance, Amer

requires the use of conductive slabs in which six small, high resolution thermocouples are embedded to accurately measure the small temperature differences (col. 3, lines 13-15 and col. 5, lines 17-20). This feature is required because samples measured by the Amer device are highly sensitive to ambient conditions due to the small size of the thin film thickness. Additionally, in Amer the thin film samples are placed in, and the thermal conductivity measurements are performed in, a bell-jar maintained at very low pressure (col. 4, lines 29-38). This feature is required to protect the thin film from ambient conditions, especially to protect against radiant heat losses. Amer teaches that the tested specimen can be applied directly to one of the conductive slabs (see col. 3, lines 61-64) and the only specific example given for such a directly applied specimen is thin films such as paint.

In view of these features, there would have been no motivation to use this method to test the thermal conductivity of a specimen that is not a thin solid film. There is no suggestion that the method of Amer is even capable of measuring the thermal conductivity of larger bodies, *i.e.*, honeycomb structures, to any extent, including to an extent that would satisfy the requirements of a §103 obviousness analysis. Patent Office rules provide that the fact that a claimed invention is within the capabilities of one of ordinary skill in the art, that does not by itself establish obviousness. MPEP §2143.01(III). There must be some objective reasoning based on rational underpinning to combine the teachings of the applied references.

For at least the reasons set forth above, and the fact that the Office Action lacks some objective reasoning with some rational underpinning as is required even after the Supreme Court's decision in *KSR v. Teleflex*, it is not clear from the Office Action that one of ordinary skill in the art would have been motivated to combine the references in the manner suggested with any reasonable expectation of success.

Kishimoto discloses, in Fig. 1, a thermal insulator in a container, the thermal insulator including foamed plastic having closed cells and metal carbonate obtained by solidifying

carbon dioxide gas with a metal carbonate. The Office Action asserts, on page 5, that the foamed polyurethane shown in Fig. 1 of Kishimoto can be "considered a porous film." There is no reasonable basis for this assertion, other than in the strained approach taken in the Office Action in an attempt to render obvious the subject matter of the pending claims. There remains in the disclosure of Kishimoto no reasonable articulated basis to combine the teachings of Kishimoto and Amer. Further, Kishimoto fails to disclose a thin film having a thickness of less than 150 μm that is capable of being tested by the method of Amer. The totality of the above discussion shows how the analysis of the Office Action fails.

II. Any Permissible Combination of Amer and Kishimoto Would Not Result in the Combination of Features Positively Recited in Pending Claim 18

The subject matter of claim 18 is directed to the testing of a honeycomb structure via a method for measurement of thermal conductivity of such a structure, which can measure the thermal conductivity of the structure in its actual shape without requiring preparing a test specimen or the like. The method recited in the claims addresses a long-standing need to have a capability for accurately determining the thermal conductivity of a honeycomb structure without damaging or altering the structure. Neither Amer nor Kishimoto can reasonably be interpreted as disclosing a honeycomb structure or a method of testing the thermal conductivity of a honeycomb structure, as recited in claim 18. The Office Action, on page 5, states "Amer addresses to a problem of stacks of the film, thus, in a broad sense, determining film of conductivity of a non-homogeneous (varied density) stack of films, which, in a broad sense, could be considered as a honeycomb structure" (emphasis added). Applicants respectfully submit that there is no reasonable basis for this assertion. In fact, this strained approach, which requires an overly "broad sense" be applied to the disclosure of Amer cannot reasonably be considered to suggest even those features, which the Office Action attempts to rely on Amer for teaching. To obtain the construction of the Amer reference that is set forth in the Office Action requires ignoring the totality of the Amer

disclosure in that Amer is limited to the testing of thin solid films having a thickness of less than .15 mm. Applicants' specification, on page 13, provides an example of a honeycomb structures having a height of 25 mm, which cannot reasonably described as a thin film, or even, in a broad sense, a stack of thin films.

Further, claim 18 recites the feature of "keeping the whole honeycomb structure in a steady temperature state...." In contrast, the Amer method would require damaging a honeycomb structure to prepare a specimen having a thickness of 50-150 μm . Thus, Amer does not address the problem of measuring the thermal conductivity of a honeycomb structure without the necessity of preparing a test specimen, which, as described above is contrary to the purpose of the recited method.

Therefore, Applicants respectfully submit that the combination of Amer and Kishimoto cannot be reasonably interpreted as disclosing a honeycomb structure, or a method of testing the thermal conductivity of a honeycomb structure.

III. The Office Action Relies on Dated and Abandoned Legal Precedent to Fill in Gaps in the Obviousness Analysis

In the footnote at the bottom of page 5, the Office Action notes there is no requirement that a motivation to make the modification be expressly articulated. The test for combining references is what that the combination of disclosures taken as a whole would suggest to one of ordinary skill in the art (*In re McLaughlin*, 170 USPQ 209 (CCPA 1971)). This standard does not absolve the Examiner from providing some reasonable combination and objective evidence of some reason for combining the references in the manner suggested (see *In re Kahn*, 441 F.3d 977 (Fed. Cir. 2006) favorably endorsed by the U.S. Supreme Court in *KSR International Co. v. Teleflex, Inc.*, 82 USPQ2d 1385 (April 30, 2007)). Also, to any extent that the 1969 CCPA decision in *In re Bozek* is relied upon to fill a void in the analysis, the Federal Circuit has clearly explained that *In re Bozek* does not relieve the Examiner from the requirement to provide evidence to support the conclusion of obviousness. In 2002, the

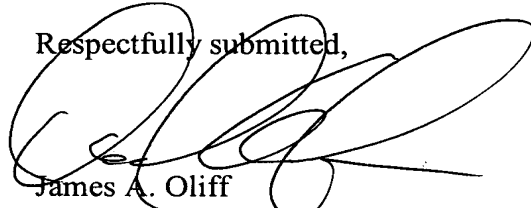
Federal Circuit specifically addressed the BPAI's erroneous application of the precedent of *Bozek in In re Lee*, 277 F.3d 1338. The Federal Circuit specifically stated that Bozek did not hold that objective analysis, proper authority, and reasonable findings can be omitted from Board decisions. The determination of patentability must be based on evidence. *Id.* at 1345.

IV. Conclusion

Applicants believe that upon review of the Final Rejection, based on the arguments presented above, that the Review Panel will find that the rejection of the pending claims over the asserted combination of applied references is in error. Applicants, therefore, respectfully submit that claims 13, 16-18, 22 and 24-26 are allowable. Favorable reconsideration and withdrawal of the rejection of the pending claims are earnestly solicited.

Should the Review Panel believe that anything further is desirable to place the application in even better condition for allowance, it is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,



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JAO:DAT

Attachment:

Notice of Appeal and Petition for Extension of Time

Date: October 4, 2007

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